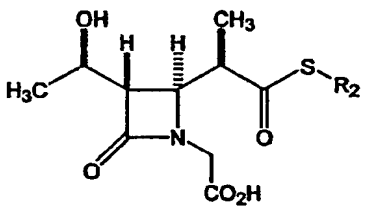
ABSTRACT

The present invention provides a novel intermediate for efficiently producing a 1β-methylcarbapenem compound for oral administration, and a process for producing the intermediate. That is, the present invention provides a process for producing a novel β-lactam compound represented by general formula (4), the process including allowing a β-lactam compound represented by general formula (5) as a starting material to react with a compound represented by general formula (6) in the presence of a base to obtain a novel β-lactam compound represented by general formula (1), protecting the hydroxyl group, subsequently performing cyclization in the presence of a strong base, allowing the cyclized compound to react with diphenylphosphoryl chloride to obtain a novel β-lactam compound represented by general formula (3), and eliminating the protecting group therefrom.



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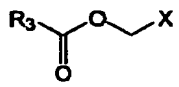

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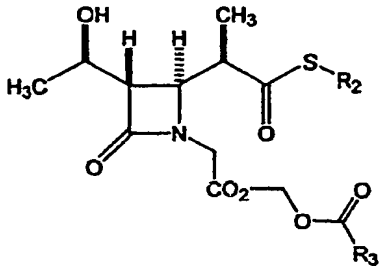
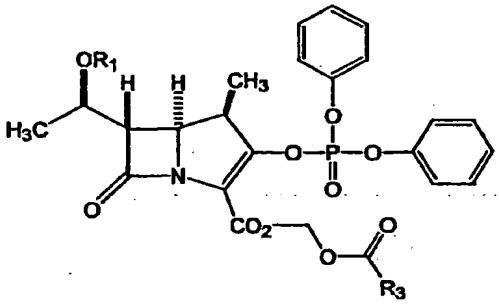


(1)



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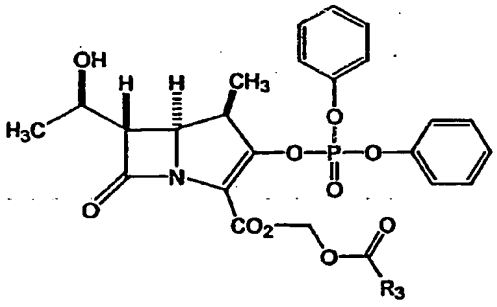

(4)

(In the formulae, R_1 represents a trimethylsilyl group or a triethylsilyl group; R_2 represents an aryl group or a heteroaryl group; R_3 represents an alkyl group having 1 to 10 carbon atoms or a cycloalkyl group having 3 to 10 carbon atoms; and X represents a halogen atom.)